



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re application of ) Group Art Unit: 2621  
)  
Lawrence B. Wolff et al. ) Examiner: Jeffrey Olsen  
)  
Application No.: 10/611,859 )  
)  
File: July 3, 2003 )  
)  
For: Method and Apparatus for Using )  
Thermal Infrared for Face Recognition )

INFORMATION DISCLOSURE STATEMENT

Honorable Commissioner of Patents  
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Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 CFR 1.97 and 1.98, applicant hereby submits the documents listed in the attached PTO 1449A and 1449B.

The patent documents have not been attached, but copies will be furnished upon request.

The listed non-patent literature documents are attached. These documents include those listed in the body of the specification.

Respectfully submitted

JONES, TULLAR & COOPER, P.C.

By: 

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August 11, 2004

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**Complete if Known**

Application Number	10/611,859
Filing Date	07/03/2003
First Named Inventor	Lawrence B. Wolff
Group Art Unit	
Examiner Name	
Attorney Docket Number	307-018

*(use as many sheets as necessary)*

Sheet	1	of	1	Attorney Docket Number	307-018
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<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

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NON PATENT LITERATURE DOCUMENTS				
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		T <sup>2</sup>
	1	"Analyzing PCA-based Face Recognition Algorithms: Eigenvector Selection and Distance Measures," Wendy S. Yambor, Bruce A. Draper, J. Ross Beveridge; Computer Science Dept., Colorado State Univ., 7/1/2000		
	2	"Independent component analysis, A new concept?", Pierre Comon; Elsevier Science B.V., 1994		
	3	"Combination of Classifiers on the Decision Level for Face Recognition," Bernard Achermann and Horst Bunke; Insitut fur Informatik und angewandte Mathematik, Universitat Bern, January 1996		
	4	"Recognizing Imprecisely Localized, Partially Occluded, and Expression Variant Faces from a Single Sample per Class," Aleix M. Martinez; IEEE, 2002		
	5	"Multi-Modal Person Authentication," J. Bigun, B. Duc, F. Smeraldi, S. Fischer, and A. Makarov; Nato Advanced Study Institute (ASI) Programme, Stirling, UK, June 23-July 4, 1997		
	6	"Local Feature Analysis: A general statistical theory for object representation," Penio S Penev and Joseph J Atick; Computational Neuroscience Laboratory, October 9, 1996		
	7	"Comparative Assessment of Independent Component Analysis (ICA) for Face Recognition," Chengjun Liu and Harry Wechsler; Second Int'l Conf. on Audio- and Video-based Biometric Person Authentication, 3/99		
	8	"Eigenfaces vs. Fisherfaces: Recognition Using Class Specific Linear Projection," Peter N. Belhumeur, Joao P. Hespanha, and David J. Kriegman; IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 19, No. 7, July 1997		
	9	"Efficient Evaluation of Classification and Recognition Systems," Ross J. Micheals, Terrance E. Boulton; Proceedings of 2001 IEEE computer Society Conf. on Comp. Vision and Pattern Recognition, 2001		

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	10	"An information-maximisation approach to blind separation and blind deconvolution," Anthony J. Bell and Terrence J. Sejnowski; Computational Neurobiology Laboratory; Neural Computation, 1995	
	11	"Quantitative Measurement of Illumination Invariance for Face Recognition Using Thermal Infrared Imagery," Lawrence B. Wolff, Diego A. Socolinsky, Christopher K. Eveland; Equinox Corp.	
	12	"Illumination Invariant Face Recognition Using Thermal Infrared Imagery," Diego A. Socolinsky, Lawrence B. Wolff, Joshua D. Neuhisel, Christopher K. Eveland; Equinox Corp.	
	13	"History, Current Status, and Future of Infrared Identification," Francine Prokoski, Ph.D.; IEEE 2000	
	14	"Comparison of Visible and Infra-Red Imagery for Face Recognition," Joseph Wilder, P. Jonathon Phillips, Cunhong Jiang, Stephen Wiener; IEEE 1996	
	15	"A Comparative Analysis of Face Recognition Performance with Visible and Thermal Infrared Imagery," Diego Socolinsky, Andrea Selinger; Equinox Corp.	
	16	"Tracking Human Faces in Infrared Video," Christopher K. Eveland, Diego A. Socolinsky, Lawrence B. Wolff; Equinox Corp.	
	17	"Face Recognition: The Problem of Compensating for Changes in Illumination Direction," Yael Adini, Yael Moses, and Shimon Ullman; IEEE 1997	
	18	"Eigenfaces for Recognition," Matthew Turk and Alex Pentland; Jnl. of Cognitive Neuroscience, Vol. 3, No. 1, MIT 1991	

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	19	"Extending Color Vision Methods to Bands Beyond the Visible," D. Scribner, P. Warren and J. Schuler; Naval Research Lab., Code 5636, Washington, D.C. 20375	
	20	"Fused Reflected/Emitted Light Sensors," S. Horn, J. Campbell, R. Driggers, T. Soyka, P. Norton, P. Perconti; Infrared Tech. and Applications XXVII, Proceedings of SPIE Vol. 4369 (2001)	
	21	"Integrated Imaging Sensors," J. Anderson, T. Kostrzewa, L. Cook, G. Baker, et al.; Infrared Technology and Applications XXVII, Proceedings of SPIE Vol. 4369 (2001)	
	22	"Multi-Sensor Image Fusion," Y.T. Zhou, HNC Software, Inc., San Diego, CA., 1994 IEEE	
	23	"Multiscale contrast enhancement with applications to image fusion," Alexander Toet; Optical Engineering, May 1992, Vol. 31, No. 5	
	24	"New false color mapping for image fusion," Alexander Toet, Jan Walraven; Opt. Eng. 35(3) 650-658 (Mar. 1996)	
	25	"Color Night Vision: Opponent Processing in the Fusion of Visible and IR Imagery," A. M. Waxman, A.N. Gove, D.A. Fay, J. P. Racamato, J. E. Carrick, M.C. Seibert and E.D. Savoye; Neural Networks Letter 1996	
	26	"Merging Thermal and visual images by a contrast pyramid," A Toet, L. J. van Ruyven, J. M. Valetton; Optical Eng., July 1989, Vol. 28, No. 7	
	27	"Infrared Color Vision: An Approach to Sensor Fusion," D. Scribner, P. Warren, J. Schuler, M. Satyshur, and M. Kruer; Optics & Photonics News, August 1998	
	28	"Multi-Sensor Image Fusion Using the Wavelet Transform," H. Li, B.S. Manjunath and S. K. Mitra; 1994 IEEE	

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	29	"Digital Picture Processing, Second Edition, Vol. 1," A Rosenfeld, A.C. Kak, Academic Press, 1982	
	30	"On Information Extraction Principles for Hyperspectral Data," D. Landgrebe, School of Electrical & Comp. Eng., Purdue U., 1997	
	31	"Theory and Analysis of Color Discrimination for the Computation of Color Edges Using Camera Sensors in Machine Vision," L. B. Wolff and D. A. Socolinsky	
	32	"A Comprehensive Introduction to Differential Geometry," Vol. Two, Second Ed., Michael Spivak, Publish or Perish, Inc., 1975, 1979	
	33	"Numerical Recipes in C, The Art of Scientific Computing," W.H. Press, B. P. Flannery, S. A. Teukolsky, W.T. Vetterling; Cambridge Univ. Press, 1988, 1989, 1990	
	34	"Remote SENSing and Image Interpretation," Third Edition, T. M. Lillesand, R. W. Kiefer; John Wiley & Sons, 1979, 1987, 1994	
	35	"Digital Step Edges from Zero Crossing of Second Directional Derivatives," R. M. Haralick	
	36	"Edge Detection in Multispectral Images," Aldo Cumani; 1991, Academic Press, Inc., CVGIP: Graphical Models and Image Proc., Vol. 53, No. 1, Jan., pp. 40-51	
	37	"Perceptual-Based Image Fusion for Hyperspectral Data," T.A. Wilson, S.K. Rogers, M. Kabrisky; IEEE Transactions on Geoscience and Remote Sensing, Vo. 35, No. 4, July 1997	
	38	"Multispectral Image Visualization through First Order Fusion," D.A. Scolinsky, L. B. Wolff; October 26, 1999	

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	39	"Multisensor Image fusion techniques in remote sensing," M. Ehlers; ISPRS Jnl. of Photogrammetry and Remote Sensing, 46 (1991)	
	40	"Multispectral Image Visualization using Local Self-Organizing Maps," P. Scheunders	
	41	"Data Fusion Techniques for Remotely Sensed Images," A. Chiuderi and S. Fini; 1994 Elsevier Science B.V.	
	42	"The Utility of Principal Component Analysis for the Image Display of Brain Lesions. A Preliminary, Comparative Study," Udo Schmiedl, D. A. Ortendahl, A.S. Mark, I. Berry and L. Kaufman; 1987 Academic Press, Magnetic Resonance in Medicine 4, 471-486	
	43	"Multispectral Image Visualization with Nonlinear Projections," A. Manduca; 1996, IEEE, IEEE Transactions on Image Processing, Vol. 5, No. 10, October 1996	
	44	"Feature Extraction Techniques for Exploratory Visualization of Vector-Valued Imagery," G. Harikumar and Y. Bresler; IEEE, IEEE Transactions on Image Processing, Vol. 5, No. 9, Sept. 1996	

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